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EDIS 589

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WISH LIST

FOR

OPTIMAL

V.I. CLASS

SETUP

I. SIZE OF CLASSROOM

A. Any regular-size classroom may be used if the location meets the requirements below.

B. Avoid the use of small classrooms.

1) Visually limited children need "navigation" room. They need fairly unobstructed paths to their resources.

2) When several visually limited children are using the room and are involved in various activities, one child should not interfere auditorily or physically with another child because of inadequate "elbow room."

3) Many of the specialized materials and equipment used by low vision students are bulky and require ample work-space for most efficient use.

Note: The size of the classroom will, of course, depend largely upon what space is available; however, it is important to keep in mind that crowded conditions are not conducive to learning in any classroom, particularly not in one for low vision students.

II. LOCATION OF ROOM

A. Exposure

1) North or south is most desirable, as it permits maximum natural illumination without direct sun; window shades are necessary.

2) If other than north or south exposure, windows must be provided with adequate controls. (See section on illumination).

B. Noise Level

1) Room should be away from normally noisy areas (gym, playground, shop, etc.) if possible.

2) A relatively quiet atmosphere should be maintained. Location in a reasonably quiet section of the building is desirable because auditory skills must be used to best advantage. Sometimes, an upper level room is desirable for this reason.

C. Access

1) Children must be able to travel to and from their various classes with a minimum of difficulty.

2) Pathways to the various work areas and resources within the classroom should be reasonably unobstructed.

III. ILLUMINATION/BRIGHTNESS

A. Definitions

1) illumination - the density of light falling upon a surface

2) footcandle - the common unit of measurement

$$I = \frac{CP}{D^2}$$

$$1 = \frac{100}{10^2}$$

I = illumination expressed in footcandles

CP = candlepower (luminous intensity of light source)

D = distance of illuminated surface from light source

3) brightness - is a sensation which depends upon illumination and reflection of the surrounding area, the reflectance factor; "sufficient quantity of light".

B. Lighting requirements vary considerably, even among students with the same eye conditions.

C. The level of illumination (whether natural, artificial, or a combination of both):

1) Must ideally measure a minimum of 50-70 footcandles and should not exceed 100 footcandles at any location in the room.

2) Fixtures must be properly spaced to evenly distribute light and prevent glare, adequately shielded, and of satisfactory color range.

3) Separate controls are necessary to allow for specific lighting requirements for individual visual conditions.

D. Even distribution of light and adequate diffusion is equally as important as footcandle level.

E. Daylight is the most desirable type of illumination, but must be controllable.

1) shades

2) venetian blinds

(Note: Skylights are not recommended unless the amount of light can be controlled either by shades or some other method.)

F. Illumination levels for individuals with eye diseases:

1) Students with the following eye diseases generally function best in average to dim lighting:
albinism
aniridia
surgical aphakia
peripheral cataracts

1) Continued - Students with eye diseases who generally function best in average to dim lighting:

- corneal grafts
- dislocation of lens
- juvenile macular degeneration
- axial myopia
- retrobulbar neuritis

2) Students with the following eye diseases generally function best in average to bright lighting:

- coloboma of the iris or choroid
- corneal dystrophy
- corneal scarring
- retinal detachment
- diabetic retinopathy
- glaucoma
- keratoconus
- retinitis pigmentosa
- retrolental fibroplasia
- uveitis

3) Students with the following eye disease generally function best in dim lighting: achromatopsia

G. Activities which generally require a high intensity of light:

- Typing
- Sewing
- Lip reading
- Reading of pencil writing
- Reading of poorly duplicated material

IV. CONTRAST

Materials should have sufficient contrast between object and background.

A. Black on white or white on black offer the greatest contrast, but buff colored paper is usually preferred because it provides less glare.

B. Black, blue, green combine w/ yellow to provide ease in discrimination.

C. Blue, green, black, purple are readily seen on white paper.

D. Use of good quality paper w/ bold lines and felt-tipped markers increase contrast.

E. Use white chalk on black or green board rather than light colored chalks.

F. A white or black mat may also help to provide contrast between objects and desk top surface.

G. Yellow acetate filters help increase the readability of mimeograph and ditto sheets (give student clearest copy).

H. Photocopied materials are usually easier than dittos to see if the quality is good.

V. COLOR SCHEME AND SURFACES

A. Ceilings may be a dull finish "off-white" to provide highest reflectance.

B. Walls and woodwork should be pastel colors to provide high reflectance and low glare (light green is generally felt to be a visually comfortable choice, though other colors may be equally adequate). All painted surfaces need to be a dull finish.

C. Floors must be a nonskid surface, a light color is preferable; nonglare finish is essential. Avoid high-gloss waxing.

D. Avoid the use of glass anywhere within the classroom (as on cabinet doors); if some use of glass is essential, use a nonglare type or frost the exposed area of glass.

E. All work surfaces (desks, tables, etc.) should be a dull finish and a light color.

VI. ELECTRICAL WIRING

A. Outlets should be readily available in all parts of every classroom; heavy duty wiring is desirable, as much electrically-operated equipment may be in simultaneous use (tape recorders, electric typewriters, record players, lighted magnifiers, etc.).

B. Several floor outlets may be feasible to permit use of a typewriter, for example, at a pupil's desk. (Note: Floor outlets can be hazardous unless carefully placed out of traffic areas.)

C. "Bar-type" plug-in outlets on at least one wall may be feasible to allow mobility of electrical equipment.

D. Wires should be secured either to the floors or walls so that students do not trip over them.

VII. FURNISHINGS - BUILT-IN STATIONARY

A. Blackboards and bulletin boards should be available.

1) Slate blackboards usually are easiest to clean and provide the greatest contrast over the longest period of time. Glass boards are not easily cleaned with an eraser and do not provide as great a contrast when clouded with chalkdust.

2) All blackboards and bulletin boards should be lowered or placed at eye level of children. Visually limited children should not have to reach to use either blackboards or bulletin boards.

3) Space above blackboards is useless for most educational purposes and should not be utilized for display.

B. Ample bookshelves and other storage spaces are essential since many materials and equipment and supplies that take up considerable space will be need to be stored.

1) large type books

2) tapes and records

3) paper supplies, teaching games, and other educational devices

C. Clocks need to be on the eye level of the children. They have no value to pupils if located too high to be seen at relatively close range.

D. Some considerations should be given to outer-clothing storage if class is self-contained.

E. A full-length mirror is desirable to encourage awareness of good posture for the partially sighted; nonglare glass should be used.

F. Sink-counter units are desirable, as are drinking fountains, but only essential for self-contained classes.

G. Lavatory facilities should be easily accessible if not contained within the classroom.

H. Individual room thermostats are most desirable and could create optimum environment with regard to temperature.

I. Sound-proof booths/individual listening stations - create ideal listening and work areas for efficient use of audio-equipment.

VIII. FURNISHINGS AND MOVABLE EQUIPMENT

A. A sufficient number of tilt-top, lightweight movable desks and chairs, as well as teacher's desk, chair, and file cabinet should be provided.

B. Small work tables and chairs can be used for study center, reading group, or for activity projects.

C. Typing tables or stands are desirable for such equipment as typewriters, record players, Braille writers, and tape recorders.

D. Music stands are useful for holding large print books at proper height and tilt, especially when seatwork requires paper, pencil, and textbook.

E. Auditory - tactile equipment
   1) talking book machine
   2) electric typewriter
   3) tape recorders
   4) desk model illuminated magnifiers
   5) earphones and multi-outlet boxes
   6) Braille writers
   7) television set
   8) radio
   9) language master

F. Academic Materials
   1) large print dictionary, encyclopedias, etc.
   2) appropriate textbooks and workbooks in whatever print size is required
   3) supplementary reading materials
   4) tapes and records (pleasure and informational type)
   5) blank tapes

G. Expendable materials
   1) paper: black-lined on white
      green-lined on buff
      plain
      graph
      Braille
      construction
   2) pencils (#1 soft-lead), erasers, chalk, crayons, felt-tip pens, styluses, and slates
   3) paste, scissors, tape, paper clips, staples, etc.

VIII. Continued -

H. Non-Optical Aids

1) Visual Aids

a. yellow acetate sheets

b. lamps w/ rheostats

c. page markers and reading windows (typoscope)

d. sun visors and other shields

e. special adjustable desks, easels, bookstands

f. felt-tip pens

g. large type books

2) Tactual Aids

a. Braille writer, slate, stylus

b. raised line drawing board and paper

c. Abacus

d. templates and writing guides

3) Auditory Aids

a. cassette tape recorders

b. talking book

4) Electronic Aids

a. talking calculator

b. optacon

c. closed circuit TV

d. computers

IX. SEATING LOCATION

A. Preferential seating should be emphasized depending upon each child's eye condition.

B. Low vision students' desks should never directly face a window because of the possibility of glare. Preferably the desks should be at about a 30° angle from the window.

C. The teacher's desk should not be against the window wall, because this would necessitate the student looking into the light in order to see the teacher at her desk.

D. The seating location of the student should allow him/her to move freely about the room if he/she needs to read the board from a close distance.

E. Avoid the possibility of a student sitting in his own shadow.

F. He should be near an outlet if he uses magnifier lamps or recorders or other electrical epuipment in his normal work.

X. SIZE OF IMAGE

A. The image or print size needed by a low vision student will vary according to the individual eye condition.

B. While some students can read relatively small print for short periods of time, comfort can be enhanced by using a print size more suitable to the refractive ability of their eyes.

C. No one type size can be considered superior to others.

D. 18 points is the most frequently used type size for visually impaired students.

E. Physical comfort and reading speed are factors deserving careful consideration when choosing an appropriate print size.

XI. DISTANCE

A. The visually impaired student should move the visual task to the proper distance to perform most efficiently.

1) Myopics may want to move closer to the board or materials.

2) Hyperopics will want to work at a distance.

B. Physical comfort and healthy posture can be maintained by placing reading material on special adjustable desks, easels, and bookstands.

C. Some students may need to bring the materials to within 1 to 2 inches of their eyes inorder to read satisfactorily.

XII. DISPLAY WORK

A. Displays should be at eye level so that the child may view them at a close distance.

B. Displays should be uncluttered.

C. Touchable displays are good.

D. Displays should be away from the windows to eliminate glare.

E. Color may be beneficial. Use colors that contrast well. Suggested combinations are: yellow on black, blue green, and purple. Also purple on yellow.

F. The child will be able to tell you what is a good print size and style.

XIII. TIME

A. More time is generally needed for visually impaired children with restricted fields of vision.

B. More time is needed for children who do not see clearly because of cataracts or defects in the retina.

C. Low vision or partially seeing children usually read at much slower speeds than their normally seeing classmates.

D. Time limits should be suspended or extended on standardized tests or achievement tests, because often it takes about twice the time for a visually impaired child to use vision. (This time span does not change the scores.) Often more than one session should be considered because fatigue can lower the scores. Any such modification in procedures should, of course, be noted.

E. Visually impaired children who read at rates of 50 to 100 words per minute can profit considerably from use of recorded materials, such as tapes and talking book records.

8 Point Type

Few parents realize that during the progress of these diseases the eyes of the patient may develop serious ulcers or other dangerous conditions, which, unless skilfully treated, may leave a white film over

10 Point Type

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12 Point Type

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14 Point Type

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18 Point Type

Few parents realize that during the progress of these diseases the eyes of

24 Point Type

Few parents realize that during the progress of these dis-

30 Point Type

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Figure 21. Cloister Boldface Type. From W. Hathaway: Education of the Partially Seeing Child, 4th edition, New York, Columbia University Press, 1959, by permission of the publisher.

Confucius say...

BE

FLEXIBLE

ADAPT

RESOURCES

Teaching The Visually Limited Child, Virginia E. Bishop, 2nd Printing

Visual Impairment In The Schools, Randall K. Harley, Ph.D. and G. Allen Lawrence, M.D., 2nd Edition

Management Of The Patient With Subnormal Vision, Gerald Fonda, 2nd Edition

Vision Pathology In Education, Edith Cohoe Kirk, Ed. D.

Understanding Low Vision, edited by Randall T. Jose

When You Have A Visually Handicapped Child In Your Classroom: Suggestions For Teachers, Anne Lesley Corn & Iris Martinez

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